Amendments to the Claims

Please cancel claim 1 without prejudice or disclaimer, amend claims 2-7, 11-13, 15-16 and 20-21, and newly add claims 22-28 so that the current status of all claims is as follows:

1. (Canceled)

2. (Currently Amended) The tuning assembly of claim ~~1~~ 22, wherein each of the ~~actuator is~~ plurality of actuators are further configured and arranged to vary the distance between ~~the~~ a corresponding tuning tip and the resonator in steps that correspond to resonant frequency changes of about 0.01% or less of the resonant frequency.

3. (Currently Amended) The tuning assembly of claim ~~1~~ 22, wherein each of the ~~actuator~~ plurality of actuators comprises a driver and a ~~moving~~ movable arm ~~connecting~~, wherein the movable arm is coupled between the driver and ~~the~~ a tuning tip.

4. (Currently Amended) The tuning assembly of claim 3, wherein the driver comprises an ~~electrical motor~~ electro-mechanical device.

5. (Currently Amended) The tuning assembly of claim 3 wherein ~~the~~ a tuning tip is a superconductor having a size at least as large as a footprint of the inductor.

6. (Currently Amended) The tuning assembly of claim 3, wherein the driver is configured and arranged to operate at a higher temperature than ~~the~~ a tuning tip, and wherein the ~~moving~~ movable arm comprises a thermal isolator positioned between the tuning tip and the driver.

7. (Currently Amended) The tuning assembly of claim ~~1,~~ 22 further comprising a position sensing device configured so as to measure the position of ~~the~~ a tuning tip.

8. (Original) The tuning assembly of claim 7, wherein the position sensing device is a reflective device.

9. (Original) The tuning assembly of claim 7, wherein the position-sensing device is a direct reading device.

10. (Original) The tuning assembly of claim 7, wherein the position-sensing device is a beam path interruption device.

11. (Currently Amended) The tuning assembly of claim 7, wherein the position sensing device and a corresponding actuator are employed in a closed-loop feedback control system intended to control ~~the~~ a distance between the tuning tip and the resonator.

12. (Currently Amended) The tuning assembly of claim ~~1,~~ 22 further comprising a frequency sensing device for measuring output frequency of the resonator.

13. (Currently Amended) The tuning assembly of claim 12, wherein the frequency sensing device and a corresponding actuator are employed in a closed-loop feedback control system intended to control the distance between ~~the~~ a tuning tip and the resonator.

14. (Original) A tuning assembly for tuning the resonant frequency of a resonator, the resonator comprising a capacitor and an inductor, the tuning assembly comprising:

(a) a plurality of tuning tips, at least one of the tuning tips comprising a superconductor; and

(b) a plurality of actuators, each actuator being operatively linked to a corresponding tuning tip, each actuator being configured to position the corresponding tuning tip over a range of distances from the resonator.

15. (Currently Amended) The tuning assembly of claim 14 ~~, wherein the tuning assembly~~ further ~~comprises~~ comprising a varactor corresponding to a tuning tip comprising a superconductor, the varactor being configured to alter the resonant frequency of the resonator over a range of frequencies, wherein the range of frequencies altered by the varactor is smaller than the range of frequency variation caused by the tuning tip.

16. (Currently Amended) The tuning assembly of claim 14, wherein a first one of the plurality of actuators is configured to position ~~its~~ a corresponding tuning tip over a range of distances from the ~~inductor~~ first component, and a second one of the plurality of actuators is configured to position its corresponding tuning tip over a ranged of distances from the ~~capacitor~~ second component, ~~as~~ at least one of the tuning tips corresponding to the first and second actuators comprises a superconductor.

17. (Previously Presented) The tuning assembly of claim 14, wherein at least one of the plurality of the tuning tips is made of a dielectric material.

18. (Previously Presented) A tuning assembly for tuning a filter, the assembly comprising:

(a) a tuning tip comprising a superconductor; and

(b) an actuator operatively linked to the tuning tip and configured to position the tuning tip at a range of distances from at least a portion of the filter, the range of distances corresponding to a range of bandwidths of the filter.

19. (Previously Presented) The tuning assembly of claim 18, wherein the range of bandwidths is at least about 10% of the bandwidths.

20. (Currently Amended) A tunable filter, comprising:

(a) a planar filter having at least a resonator, the resonator having a first component and a second component; and

(b) a tuning assembly, comprising:

(i) ~~a tuning tip~~ a plurality of tuning tips, at least one of the tuning tips including a superconductor; and

(ii) ~~an actuator operatively linked to the tuning tip and configured and arranged to position the tuning tip at a range of distances from the resonator~~ a plurality of actuators, each actuator being operatively linked to a corresponding tuning tip, for positioning a first of the plurality of tuning tips at a range of distances from the first component and a second of the plurality of tuning tips at a range of distances from the second component, the range being sufficient to cause the resonant frequency of the resonator to vary by at least about 1% of the resonant frequency, the tuning tip being configured and arrange to maintain the Q-factor of the resonator to be at least 10,000.

21. (Currently Amended) A method of tuning a filter having at least one resonator, the method comprising:

(a) positioning a plurality of tuning ~~tip~~ tips at a range of distances from the resonator, the resonator having a first component and a second component, the range being sufficient to cause the resonant frequency of the resonator to vary by at least about 1% of the resonant frequency; ~~and~~

(b) tuning the resonator using a plurality of actuators, each actuator being operatively linked to a corresponding tuning tip, for positioning a first of the plurality of tuning tips at a range of distances from the first component and a second of the plurality of tuning tips at a range of distances from the second component; and

~~(b)~~(c) maintaining the Q-factor of the filter at not less than 10,000.

22. (New) A tuning assembly for tuning a resonant frequency, comprising:

a resonator having a first component and a second component;

a plurality of tuning tips, at least one of the tuning tips including a superconductor; and

a plurality of actuators, each actuator being operatively linked to a corresponding tuning tip for positioning a first of the plurality of tuning tips at a range of distances from the first component and a second of the plurality of tuning tips at a range of distances from the second component.

23. (New) The tuning assembly of claim 22, wherein the actuator linked to the first of the plurality of tuning tips coarsely tunes the resonator.

24. (New) The tuning assembly of claim 22, wherein the actuator linked to the second of the plurality of tuning tips finely tunes the resonator.

25. (New) The tuning assembly of claim 22, wherein the first component is a inductor.

26. (New) The tuning assembly of claim 22, wherein the second component is an capacitor.

27. (New) The tuning assembly of claim 22, wherein the range is sufficient to cause a resonant frequency of the resonator to vary by at least about 1% of the resonant frequency.

28. (New) The tuning assembly of claim 13, wherein the closed-loop feedback control system further comprises a fixed sweep circuit for measuring filter parameters.